Catalog of Mitigation Options
Oil and Gas Technical Working Group

Catalog as of July 31, 2008, with feedback from July 15, 2008 MAG meeting

Some TWG members provided revisions to this document after it had been posted to the MAG website on July 10, 2008. This document contains the revisions marked in italics. Some reorganization of options has happened as a result of the revisions.

Feedback from July 15, 2008 MAG meeting is noted in yellow highlights

Brief descriptions of these options, and some of the related state actions underway, are available in a companion document.

Key to Preliminary Rankings of Options in the Tables that Follow:

Potential GHG Emission Reductions 1/	Potential Cost or Cost Savings 1/ 2/
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO_2e) per year by 2020 (~2% of current AK emissions)	**High (H)**: $50 per metric ton CO_2e ($MtCO_2e$) or above
Medium (M): From 0.1 to 1.0 $MMtCO_2e$ per year by 2020	**Medium (M):** $5-50/$MtCO_2e$
Low (L): Less than 0.1 $MMtCO_2e$ per year by 2020	**Low (L):** Less than $5/$MtCO_2e$
Uncertain (U): Not able to estimate at this time	**Negative (Neg):** Net cost savings
	Uncertain (U): Not able to estimate at this time

1/ Several options may overlap in terms of emissions reductions and/or cost impacts. Estimates assume options would be implemented independently from other options.
2/ Costs are denoted by a positive number. Cost savings (i.e., "negative costs") are denoted by a negative number.

Definition of "Priorities for Analysis" [these will be assigned by the MAG/TWG as part of this process]:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low**: Low priority options will be analyzed last, time and resources permitting.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs and Economy, Externalities, Feasibility, Interactions with Federal GHG programs	Priority for Analysis	Notes / Related Actions in Alaska Proposed actions at Federal level
OG-1	OVERARCHING POLICIES					
1.1	*Ensure Growth of Alaska's Jobs and Economy*					*MAG feedback is that this should be addressed as criteria across all options rather than as a separate option, see revisions to "Other Considerations" column heading*
1.2	*Avoid Redundancy and Conflicting of Federal GHG Program with other programs.*					*MAG feedback is that this should be addressed as criteria across all options rather than as a separate option, see revisions to "Other Considerations" column heading*
1.3	Incentives to Reduce the GHG-intensity of Fossil Fuel Production					
1.4	Reduce Energy Demand for Fossil Fuels in Residential, Commercial, Industrial (non-oil and gas), Electric, and Transportation Sectors					This option will likely also be considered in Energy Supply/Energy Demand TWG and in the Transportation and Land-Use TWG. Oil and Gas TWG want to ensure this option is considered and share any information with other TWGs.
1.5	*Gap Analysis of* Research and Development (R&D) Opportunities, including R&D for low-GHG Fossil Fuel Technologies					
1.6	*Evaluate* Market-Based					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs and Economy, Externalities, Feasibility, Interactions with Federal GHG programs	Priority for Analysis	Notes / Related Actions in Alaska Proposed actions at Federal level
	Mechanisms to Establish a Price Signal for GHG Emissions (GHG Cap-and-Trade or Tax/Emissions Fee or Federal Regulations)					
OG-2	*PREPARE FOR FEDERAL REQUIREMENTS FOR GHG*					
2.1	*Support Federal GHG Program*					
2.2	*Support for Regional Tradeoffs Amongst Carbon and Currently Regulated Pollutants*					
OG-3	CARBON CAPTURE AND STORAGE OR REUSE IN OPERATIONS: INCENTIVES, SUPPORT OR REQUIREMENTS					
3.1	*Evaluate Incentives, Economics and Feasibility of* CO_2 capture in O&G operations					Related action: **Carbon Capture Project** http://www.co2captureproject.org/overview/overviewP2.htm, joint project with oil companies and government partners
3.2	*Evaluate Incentives, Economics and Feasibility of* CO_2 storage or reuse in					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs and Economy, Externalities, Feasibility, Interactions with Federal GHG programs	Priority for Analysis	Notes / Related Actions in Alaska Proposed actions at Federal level
	O&G operations					
3.3	*Evaluate Economics and Feasibility* of CO_2 use for Enhanced Oil Recovery (EOR) or Other Reuse in O&G Operations					
3.4	*Evaluate Economics and Feasibility* of CO_2 capture and storage or reuse (CCSR) in refineries					
3.5	*Support EPA Development of UIC (Underground Injection Control) rules for CO_2 injection*					
OG-4	FUEL PRODUCTION AND PROCESSING					
4.1	Oil and Gas Production: Incentives, Support, or Requirements for Energy Efficiency					
4.2	Oil and Gas Production: Energy efficiency Incentives, Support, or Requirements for Reducing Fugitive					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs and Economy, Externalities, Feasibility, Interactions with Federal GHG programs	Priority for Analysis	Notes / Related Actions in Alaska Proposed actions at Federal level
	Emissions					
4.3	Improve energy efficiency / cogeneration in refineries					
4.4	Reduce Fugitive Emissions at Refineries					
4.5	*Evaluate Economics and Feasibility of* Low-GHG fuels in refineries					
4.6	Renewable Energy Technologies for Oil and Gas Production					
4.7	Energy production, Distribution, and Sharing Agreements for Upstream Oil & Gas Facilities					
4.8	*Evaluate Economics and Feasibility of* Reducing flaring					
4.9	Low-GHG Hydrogen production incentives and support					*Some TWG members suggest deleting this option or removing it from the Oil and Gas sector*
OG-5	FUEL DELIVERY					
5.1	Natural Gas Transmission					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs and Economy, Externalities, Feasibility, Interactions with Federal GHG programs	Priority for Analysis	Notes / Related Actions in Alaska Proposed actions at Federal level
	and Distribution: Incentives, Support or Regulations to Reduce Fugitive Emissions					
5.2	Natural Gas Transmission: Incentives, Support or Regulations to Improve Efficiency					
5.3	Improve efficiency of oil transmission and distribution systems					
5.4	Reduce Fugitive Emissions from Oil transmission and distribution systems					
5.5	Improve Energy Efficiency in Gas Distribution Systems					